

CLAIMS

What is claimed:

1. In a multilayer polyolefin film of a type suitable for packaging applications, the combination comprising:

(a) a flexible substrate layer formed of a crystalline thermoplastic polymer
5 having an interface surface; and

(b) a heat sealable surface layer bonded to the interface surface of said substrate layer formed of a syndiotactic propylene polymer and having a thickness which is less than the thickness of said substrate layer, said surface layer being effective to produce a heat seal with itself at a seal temperature less than 110°C.

2. The combination of claim 1 wherein said substrate layer is formed of a stereoregular propylene polymer.

3. The combination of claim 1 wherein said substrate layer has an average thickness within the range of 5-150 microns and said surface layer has a thickness which is no more than one-half the thickness of said substrate layer.

4. The combination of claim 1 wherein said surface layer is formed of syndiotactic polypropylene produced by the polymerization of propylene in the presence of a syndiospecific metallocene catalyst.

5. The combination of claim 4 wherein said syndiotactic polypropylene is characterized by a melt flow index of less than 3 grams/10 minutes.

6. The combination of claim 4 wherein said syndiotactic polypropylene is characterized by a melt flow index of less than 2 grams/10 minutes.

7. The combination of claim 4 wherein said substrate layer is formed of an isotactic propylene polymer.

8. The combination of claim 7 wherein said substrate layer is formed of an isotactic propylene polymer produced by the polymerization of propylene in the presence of an isospecific metallocene catalyst.

9. The combination of claim 1 wherein said substrate layer is formed of an ethylene propylene copolymer having an ethylene content of no more than 10 wt.%.

10. The combination of claim 1 wherein said multilayer film is oriented in at least one direction.

11. The combination of claim 1 wherein said multilayer film is biaxially oriented.

12. The combination of claim 1 wherein said multilayer film produces a maximum seal strength upon the heat sealing of said surface layer with itself at a temperature within the range of 95-110°C of at least 4 newtons/centimeter.

13. The combination of claim 12 wherein said multilayer film produces a maximum seal strength of at least 4 newtons/centimeter throughout a predominant portion of the range of 100-110°C.

14. In a process for the production of a multilayer film having a substrate layer and a surface layer, the process comprising:

(a) providing a first crystalline thermoplastic polymer;

(b) extruding said propylene polymer and forming said polymer into a
5 substrate layer;

(c) providing a second polymer comprising a syndiotactic propylene polymer effective to form a surface layer of said multilayer film;

(d) extruding said syndiotactic propylene polymer to form a surface layer; and

(e) bonding said surface layer to the interface surface of said substrate layer at
10 a temperature within the range of 150°-260°C to form a multilayer film having a surface layer of said syndiotactic propylene polymer which has a thickness that is less than the thickness of said substrate layer.

15. The process of claim 14 wherein said first polymer is an isotactic propylene polymer.

16. The method of claim 14 wherein said second polymer is syndiotactic polypropylene produced by the polymerization of propylene in the presence of a syndiospecific metallocene catalyst.

17. The method of claim 16 wherein said syndiotactic polypropylene is characterized by a melt flow index of less than 3 grams/10 minutes.

18. The method of claim 16 wherein said substrate layer film is formed by orienting said substrate layer form in at least one direction and thereafter forming said surface layer by extrusion-coating said syndiotactic polypropylene on to said oriented substrate layer film.

19. The process of said claim 14 wherein said multilayer film is formed by co-extruding said first and second polymers through a slotted die system to form a multilayer film comprising a substrate layer of said first polymer and a surface layer of said second polymer and thereafter orienting said film in the machine direction followed by orienting the film in the
5 transverse direction to form a biaxially-oriented multilayer film.

20. In a process for the production of a multilayer film having a substrate layer and a surface layer, the process comprising:

(a) providing a first polymer to form the substrate layer of a multilayer film;

(b) providing a second polymer comprising a syndiotactic propylene polymer

5 effective to form a heat-sealable surface layer of said multilayer film; and

(c) co-extruding said first and second polymers through a slotted die system at a temperature within the range of 150°-260°C to form a film comprising a substrate layer of said first polymer and a surface layer of said second polymer of a thickness which is less than the thickness of said substrate layer.